

6.5

# Graphing Linear Inequalities with Two Variables



Hot Dog!

Let's start with some simple horizontal & verticals.

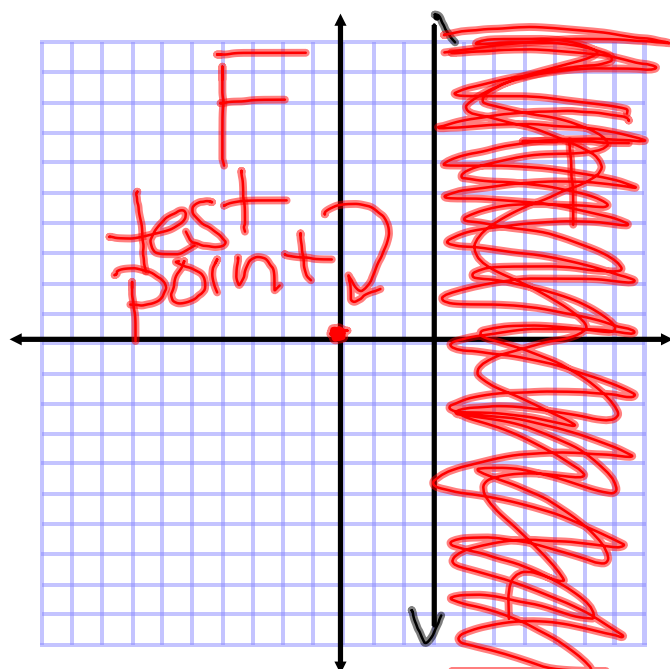
$(0,0)$

Example 1:

$$x \geq 3$$

$x = 3$

x	y
3	0
3	2



Example 2:

$$y < -5$$

$$y = -5$$

x	y
-2	-5
0	-5
2	-5

$$(0, -10)$$

$$-10 < -5$$

Dotted

$$(2, 0)$$

$$(1, 1)$$

$$(1, 3)$$

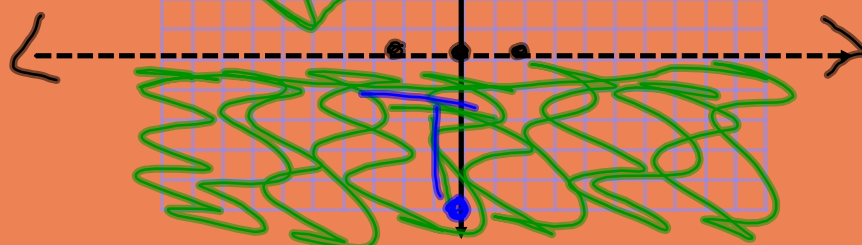
$$x, y$$

$$3 < -5$$

$$0 < -5$$

$$F$$

$$0 < -5$$



## Graphing 2-Variable Inequalities on the Coordinate Plane

Edit

Reset

?

1

Get the inequality into slope-intercept form.

2

for less than & greater than. Use a solid line for "or equal to's".

3

Test a point in 1 plane (above or below the line). Use  $(0, 0)$  if it is not on the line. If  $(0, 0)$  is on the line,

4

If the test point is a solution, shade the half plane that includes the test point.

5

If the test point is NOT A SOLUTION, shade the other half plane.

Now we're talkin'!

Example 3:

$$x - y \leq 2$$

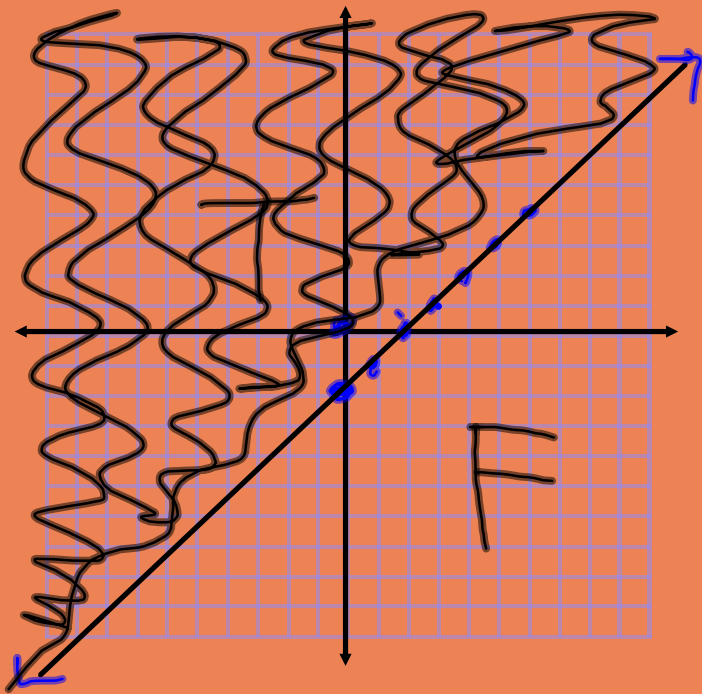
$$\begin{array}{cc} -x & -x \end{array}$$

$$\frac{-y}{-1} \leq \frac{-x+2}{-1} \quad \frac{-y}{-1} \quad \frac{-x+2}{-1}$$

$$y \geq x - 2$$

$$0 \geq 0 - 2$$

$$0 \geq -2$$



Let's get down to the Nitty-Gritty!

Example 4:

$$4x + 5y \leq 10$$

$$\begin{array}{rcl} -4x & & -4x \\ 5y & \leq & -4x + 10 \end{array}$$

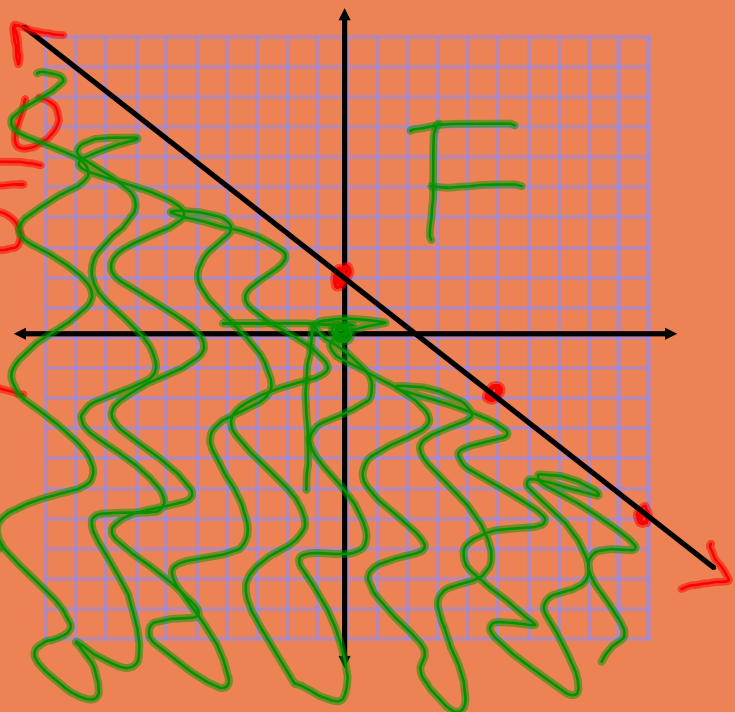
$$\frac{5y}{5} \leq \frac{-4x}{5} + \frac{10}{5}$$

$$y \leq -\frac{4}{5}x + 2$$

$$0 \leq -\frac{4}{5} \cdot 0 + 2$$

$$0 \leq 0 + 2$$

$$0 \leq 2$$

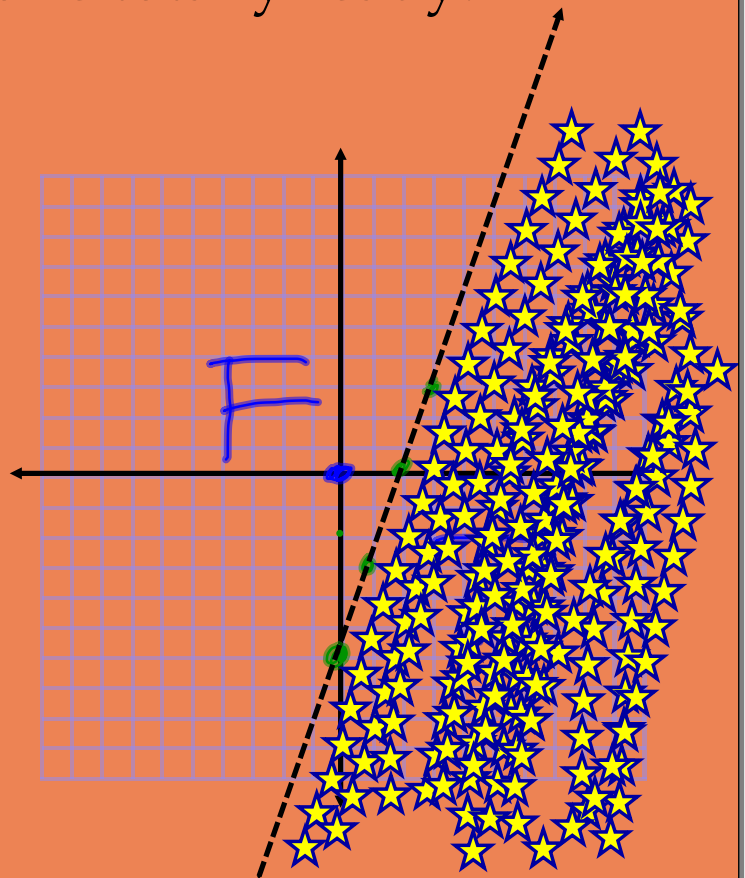


If you get this one, you're totally ready!

Example 5:

$$9x - 3y > 18$$

$$\begin{array}{l} -9x \quad -9x \\ -3y > -9x + 18 \\ \frac{-3y}{-3} > \frac{-9x}{-3} + \frac{18}{-3} \\ y < 3x - 6 \\ 0 < 3 \cdot 0 - 6 \\ 0 < -6 \\ \text{False} \end{array}$$



Listen Up, Cowboy -  
Get this assignment  
in your Planner and  
get Crack-A-Lacken!